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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,781	02/06/2002	Mark R. Hansen	077077-9143-00	3607

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EXAMINER

NGUYEN, HOAI AN D

ART UNIT	PAPER NUMBER
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2854

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/071,781

Applicant(s)

HANSEN ET AL.

Examiner

Hoai-An D. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes in view of Roustaei.

Sikes teaches a method and apparatus for registration mark identification comprising:

- Acquiring an image of the paper substrate (Column 12, lines 59-60), with regard to claim 1.
- Processing the image to determine whether the color register marks are found therein (Column 12, lines 61-65), with regard to claim 1.
- Image is acquired by a CCD scanner or camera (Column 1, line 52), with regard to claims 2.
- Paper substrate is a web (Column 12, line 60), with regard to claim 3.

However, Sikes does not explicitly disclose the following:

- Processing including using an FPGA.

Meanwhile, Roustaei teaches an optical scanner and image reader comprising:

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- Processing including using an FPGA or ASIC in a microcomputer and image processing software (column 4, lines 19-22), with regard to claim 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Sikes to incorporate the teaching of a processor using FPGA or ASIC taught by Roustaei since Roustaei teaches that such a combination is beneficial to provide an optical scanner and imager with increasing processing speed and image processing quality.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes in view of Roustaei, and further in view of Pierce et al.

Sikes and Roustaei together teach all that is claimed, except the following:

- The register marks are of a size equal to or smaller than 0.010 inch.

However, Pierce et al. teaches an accurate registration for imaging method comprising:

- The register marks are of a size equal to or smaller than 0.010 inch (Paragraph 23, lines 1-6), with regard to claim 4.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the system of Sikes to incorporate the teaching of a size of registration marks equal to or smaller than 0.010 inch taught by Pierce et al. since Pierce et al. teaches that such a arrangement is beneficial to provide substantially an absolute measure of the position of the web or sheet.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes in view of Roustaei, and further in view of Siler.

Sikes and Roustaei together teach all that is claimed, except the following:

- The register marks are diamond shaped.

However, Siler teaches a registration system for printing press comprising:

- The register marks are diamond shaped (Paragraph 43, lines 1-8), with regard to claim 5.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the system of Sikes to incorporate the teaching of a size of diamond shaped registration marks taught by Siler since Siler teaches that such a arrangement is beneficial for facilitating the calculation of the center of the registration marks.

5. Claims 6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes in view of Roustaei, and further in view of Pierce et al.

Sikes teaches a method and apparatus for registration mark identification comprising:

- Acquiring an image of the paper substrate (Column 12, lines 59-60), with regard to claim 6.
- Analyzing the image for the color register marks to determine whether the color register marks are found therein (Column 12, lines 61-65), with regard to claim 6.
- The register marks are in a pattern (Column 11, lines 13-14), with regard to claim 8.
- The pattern includes four marks of one ink color and one mark of each of three other ink colors (Column 11, lines 14-15), with regard to claim 9.
- The image is acquired by a camera (Column 12, line 59), with regard to claim 10.

- The camera is a CCD camera (Column 1, line 52), with regard to claim 11.
- Paper substrate is a web (Column 12, line 60), with regard to claim 12.

However, Sikes does not explicitly disclose the following:

- Processing including using an FPGA.

Meanwhile, Roustaei teaches an optical scanner and image reader comprising:

- Processing including using an FPGA or ASIC in a microcomputer and image processing software (column 4, lines 19-22), with regard to claim 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Sikes to incorporate the teaching of a processor using FPGA or ASIC taught by Roustaei since Roustaei teaches that such a combination is beneficial to provide an optical scanner and imager with increasing processing speed and image processing quality.

Sikes and Roustaei together teach all that is claimed, except the following:

- The register marks are of a size equal to or smaller than 0.010 inch.
- The printed color register marks are found on the substrate within 5 plate revolutions.

However, Pierce et al. teaches an accurate registration for imaging method comprising:

- The register marks are of a size equal to or smaller than 0.010 inch (Paragraph 23, lines 1-6), with regard to claim 6.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the system of Sikes to incorporate the teaching of a

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size of registration marks equal to or smaller than 0.010 inch taught by Pierce et al. since Pierce et al. teaches that such a arrangement is beneficial to provide substantially an absolute measure of the position of the web or sheet.

With regard to the printed color register marks found on the substrate within 5 plate revolutions, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the system of Sikes to incorporate the teaching of a printing press that there are typically four color inking units black (K), cyan (C), magenta (M), and yellow (Y). The camera assembly should be arranged within these inking units, so it is clear that the printed color register marks are found on the substrate within 5 plate revolutions.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sikes in view of Roustaei and Pierce et al., and further in view of Siler.

Sikes, Roustaei and Pierce et al. together teach all that is claimed, except the following:

- The register marks are diamond shaped.

However, Siler teaches a registration system for printing press comprising:

- The register marks are diamond shaped (Paragraph 43, lines 1-8), with regard to claim 7.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the system of Sikes to incorporate the teaching of a size of diamond shaped registration marks taught by Siler since Siler teaches that such a arrangement is beneficial for facilitating the calculation of the center of the registration marks.

Response to Arguments

7. Applicant's arguments filed on October 9, 2003 have been fully considered but they are not persuasive to put the independent claims 1 and 6 in allowing condition because they are still broad as currently claimed to overcome the previous 35 U.S.C. 103 rejection.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Sikes teaches a method for finding color register marks printed on a paper substrate using an image processor as discussed above, and Roustaei teaches an image processor using FPGA used in a scanning or imaging device (imaging device = printing device = printing press) to increase processing speed and image processing quality (Roustaei, from column 2, line 57 to column 4, line 49). The image processor using FPGA to increase processing speed and image processing quality has been well known in the art, so the incorporation of a FPGA processor with the apparatus taught by Sikes might be complex, but it is doable to one having ordinary skill in the art. Therefore, it would have been obvious to one having ordinary skill in the art to modify Sikes to process an image to find color register marks printed on a paper substrate using an image processor using FPGA since Roustaei such an arrangement is beneficial for increasing processing speed and image processing quality.

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In response to applicant's argument about Applicants' arranging step of claim 6 that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). It has been well known in the art, a printing press typically has four color inking units black (K), cyan (C), magenta (M), and yellow (Y), so it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the camera assembly somewhere within these inking units, so that the printed color register marks can be found on the substrate within 5 plate revolutions.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai-An D. Nguyen whose telephone number is (703) 305-3343. The examiner can normally be reached on M-F (8:00 - 5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew H. Hirshfeld can be reached on (703) 305-6619. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Hoai-An D. Nguyen
Examiner
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HADN

A handwritten signature in black ink, appearing to read "Ren Yan", with a stylized, cursive script.

**REN YAN
PRIMARY EXAMINER**